DIGITAL PICTURES AND E-MAIL

Mayling Margraves & Peter R Jensen

Many people have digital cameras, and or scanners. We all want to share the pictures they produce with our friends and relatives. But there is a problem with their size if not reduced before inclusion on the Internet. Even the venerable 1998 Nikon 900S takes as its 'normal' picture one that creates an image file at about 250Kb in JPG format.

If both the email sender and recipient have Broadband there is no problem in sending or receiving files of more than a megabyte. However mostly senders and recipients have a dialup connection using a 56K modem. This means that transmission of large files takes a very long time and is therefore quite expensive to run particularly in the UK where the dreaded Subscriber Timed Dialing, STD applies.

Most people only look at pictures on their monitors so a resolution of 640 x 480 is ample and more important-ly, the file size will be under 100Kb using JPG format once it has been compressed. However, if you want to print a picture to A4 size, ask the sender to transmit the original even if it is a TIFF or GIF type file.

Because of the problem of big graphics files on the Internet, being able to compress them is a useful skill to know about. The purpose of this article is to tell you how to reduce the resolution of large images by con-version to JPG file format using Windows programs known to your editors and therefore making them more suitable for sending by E-mail.

All the programs described have a number of facilities including presenting a group of pictures as a slide show, as well as the choice of cropping the image to show the parts you actually want to be seen. Better to do the cropping before you resize incidentally. Purists will convert the picture to TIF format which is less 'lossy' than JPG before doing the cropping. I do not propose to go into either the details or reasons for this

approach here because this article is aimed at the novice.

When you have managed to reduce your image file to a suitable size by compressing to the JPG format, attach it to your email in the usual way. However, it is most important to save the reduced size file with a different name, otherwise you will lose the original. The reason for this is the JPG format achieves com-pression by discarding large amounts of data in the original image, which once gone cannot be recovered. Evidently such a loss may not matter if you have made a backup before you started to play around with your original. Bear in mind that most photographs cannot easily be replicated if you lose the original so take care and think before compressing. And of course, **You Do Back Up don't you?!?** Now to the programmes used for this necessary conversion job.

Irfanview v. 3.80
This is a free image viewing program easily found on the Internet. Select the picture you want to send and click on its file to show it as a large picture. To reduce size left click on 'Image', 'Resize / Resam-ple' and up pops a window: choose the '640 x 480' size on the right side of the window. The picture will then shrink in the window.
Left click 'File', 'Save As' and rename the picture, saving as a .jpg file. I usually add an 'a' to the filename, ie a picture called Sam.jpg will be saved as Sama.jpg or Sam-a.jpg to differentiate it from the original. Re-ducing even a 1.5Mb file to a 640 x 480 .jpg file takes up less than 100Kb and still displays well.

ACDSee
Versions 3 and 4 are often found on disks distributed with PC magazines. The latest version is 6.02. This information is for Version 4, however they are all fairly similar. Find the thumbnail you want to send and double click on it to make the display larger. Crop if

CONTENTS

EDITORIAL

Instead of Ed MM letting fly, she thought a self portrait might be more entertaining!

DIGITAL PICTURES & E-MAIL - CONT

required. Left click 'Tools', 'Resize' and choose 'Reduce to' '640 x 480' and keep 'Preserve original aspect ratio' checked.
Left click 'File', 'Save As' and rename the picture, saving as a.jpg file. I usually add an 'a' to the filename, ie a picture called Sam.jpg will be saved as Sama.jpg or Sam-a.jpg to differentiate it from the original.

Paintshop Pro
Versions 4 and 5 are often found on disks distributed with PC magazines. This information is for Version 8, however they are all fairly similar.
Find the file by either:
1. Left click 'File', 'Open' and open the picture you want or
2. Left click 'File', 'Browse' and go to the folder where the picture is, open the picture.

Go to 'Image', 'Resize', choose 640 x 480, and check 'Lock Aspect Ratio', click OK.
Left click 'File', 'Save As' and rename the picture, saving as a.jpg file. I usually add an 'a' to the filename, ie a picture called Sam.jpg will be saved as Sama.jpg or Sam-a.jpg to differentiate it from the original.

I use Windows operating systems 98, 98SE and 98ME. If you use Windows XP I think it incorporates a picture editor. Use the above instructions to search amongst the drop down menus at the top of the screen until you find 'Resize' and find the 640 x 480 options.

'Save As' using a new filename.

Micrographics Picture Publisher although not as powerful as the Numero Uno of Graphics and Photo-graphic packages, Photoshop 8 or its cut down ver-sion, Photoshop Elements, performs pretty well and has been used in a commercial situation. It completes most tasks thrown at it and its mode of compression is particularly simple.

All you have to do is open the file to be compressed, whether it be TIFF, GIF or whatever, and then resave it as a JPG. This is all done via the two menus that pop up with Open and Save As. When saving, the programme opens another menu which allows you to view two images side by side: the original and the compressed version. A slider is provided to set the level of compression and there is a meter that reads out the file size achieved. This allows you to select an image size that will transmit fast over a dial up modem connection. It is also very useful where one wants to embed images in a Word text file because Word gets very stroppy with images much above 250k per page.

Incidentally, Micrographics V8 was a "give away" with PC Plus magazine a couple of years ago and it is certainly well worth looking for. It may even be possible to obtain it from their web site in the UK. There is another source but we will not go into that just now.

E-MAILS YOU WISH YOU'D NEVER SENT
From BBC

E-mail is a great tool of communication but sometimes just a click of the send button can spell disaster.

When Devon schoolgirl Claire McDonald logged on to check her e-mails she was taken aback to find an urgent missive from the Pentagon among the chatty greetings from her friends. It contained confidential information not intended for civilian eyes. Claire replied to point out the error, but the e-mails kept coming, from the Pentagon, the Ministry of Defence and elsewhere. One detailed communications problems on British warships; another New Zealand's defence strategy.

On average 11 such e-mails arrived a day for six months - so many that Claire's computer crashed, unable to cope with the huge files sizes. It turned out a Royal Navy officer based at the Pentagon had inadvertently included Claire on a mailing list because of a typing error.

Anyone who claims never to have been caught out by such a simple mistake is either lying or is soon to come a-cropper, says Tony Hallett of Silicon.com. "Most of the time it's just people being stupid, and anyone can be stupid with something as simple as e-mail."

A common clanger is to reply to the wrong person, whether by replying when you mean to forward an e-mail grumbling about the sender, or by hitting "reply all".

When Dave penned a very ripe reply to a colleague's invite to birthday drinks, he inadvertently sent it to everyone in the company - support staff, managers, directors, everybody. Some joked the party could double as Dave's leaving do.

"I just couldn't believe that he'd managed to send such an offensive e-mail to 1,000 people," gasped the birthday boy, Jo Younge. While Dave got away with his four-letter blunder, for others "send" can act as a self-destruct button.

E-mail in haste...

The beauty of e-mail - its speed and its immediacy - is also its pitfall. E-mail is now an everyday tool, but we still get caught out by basic gaffes, as a series of 10-minute programmes on BBC Two illustrates.

Sometimes the writer should have taken a few minutes to really think about the content - spin doctor Jo Moore's "today is a good day to bury bad news" e-mail of 11 September 2001 springs to mind. And sometimes a private exchange becomes a cyberspace juggernaut in the time it takes to read and hit "forward".

So how best to avoid e-mail clangers? One top tip is never to write anything you would be reluctant to say in person - avoid swearing, insulting people and discussing your private life. Most of us would hesitate before letting loose with a four-letter rant in the office, so why put it in writing?

And take time to think about what you've written. Words typed in haste - and perhaps in the heat of anger or passion - can cause hurt or offence, or be open to misinterpretation. This is not only a problem at work - one in 10 couples seen by Relate's counsellors have problems directly caused by the use of the web or e-mail.

"One of the things that frequently amazes us - even now - is how naive people are about e-mail," says Clive Carmichael Jones, of Vogon Computer Forensics. "They think once they hit send, it's gone. But many copies exist - on your computer's hard drive, on your server, on the back-up tapes, on the recipient's computer, on their server and so on."

For your eyes only

We also forget that we have no control over who sees our e-mails. Not only do companies routinely screen for objectionable content, we also have no control over what the recipient does with a message.

" You are a star... we are on the same wave length ". Cherie Blair to Peter Foster, who helped her buy two flats. Cherie Blair must surely regret her e-mails to convicted fraudster Peter Foster which later appeared in the Daily Mail.

And when CS playfully commented on a sperm bank joke, little did she realise that her intimate exchange with boyfriend BC would become global gossip fodder. For the ungallant Mr C forwarded her e-mail to six friends and so on and so on until millions had seen it.

And that just goes to show another problem with e-mail - it depersonalises the sender; transforms them from a

E-MAILS YOU WISH YOU'D NEVER SENT

person into a comment to be chortled over. Imagine if it was your private life made so horribly public?

The 10-part series E-mails You Wish You Hadn't Sent is broadcast on Wednesdays at 2150 GMT on BBC Two.

Some comments sent to BBC:

"My company is rolling out instant messenger to cut out on e-mail, because it will allow direct communication and leave e-mail to relevant and important business exchange. But hang on, instant communication? Didn't someone invent the phone for that? People are just scared to talk to each other."

"I work in an IT department and the number of people who walk away from machines leaving them logged on is amazing. They'll walk out the room leaving whoever pleases to play with their e-mail. In the end we walked round the buildings and sent an "abusive" e-mail to a member of senior management (who was with us) and summoned each user in turn... they were quite shocked."

"Spoken words have so much information in its delivery that its true meaning is clear, but e-mail is blunt and open to interpretation. Smiles and so on help, but you cannot have an icon for every meaning. Perhaps I should not have told a friend he had a B.O. problem via e-mail after all :("

"Outlook has the option of "Send e-mail immediately when connected". By deselecting this option, mail is not sent until the next time the server is polled for new messages. This gives me a chance to intercept an outgoing message."

"It's a good idea to remove your "Reply to All" Icon from the menu, that way you won't inadvertently press it."

"I think the biggest idiots are the people who deal with tenders in local government and public bodies. Today, for the fifth time, I've been sent an e-mail from one of these idiots who has not made the effort to hide who they are sending the e-mail to, so I see the other 150 companies I am up against, and they see me. Surely, as they state all submissions will be in strictest confidence they should make an effort to use the "bcc" button."

"As a company, we needed to come up with a short, snappy slogan to get the point across in our training courses about e-mails being potentially dangerous. The answer was amazingly simple: "Don't e-mail something that you're not prepared to scream in a crowded room!""

"I find that the "save as" command can be a lifesaver. If you feel strongly about something, by all means write the e-mail, but then save it as a draft document and re-read it once you feel a little cooler, possibly the following day. If replying to something specifically directed at you, remember the power of silence."

"I took a "sick" day once and sent an e-mail the next day boasting to my friends about the cause; lots of beer! Except the e-mail went to my whole department by mistake instead! I work somewhere else now."

"I got caught out once like this - typing a rude e-mail that was never meant to be sent but then jokingly going for the 'send' button - it's a dangerous world."

"It can be a good idea to open up a new mail when replying to somebody. This removes the chance of hitting forward or reply to all. Also save everything you send, you may need it as evidence someday! Don't put any information in that may get you in trouble. Someone may be your friend now, but who knows in six months!"

"I set my mail client (Eudora) so that the Send button just leaves the message in the outbox for about 5 minutes before really sending it. This gives me a chance to check that I mailed it to the right person, and gives the vital few minutes of cooling off. It's saved me from embarrassment on many occasions. Another useful tip: irony and sarcasm aren't often understood outside the UK, so be careful on web sites and international mailing lists..."

"It works both ways. A manager at a company I used to work for thought he was quite clever at concealing his racism from his employer. Unfortunately for him an e-mail he sent with various racist 'jokes' was captured on our backup tapes and was instrumental in his dismissal."

"The same points apply to Usenet posts with one extra gotcha - posts are archived (most notably on groups.google.com) so your rant will be stored for all posterity!"

5 HANDY TIPS FOR MICROSOFT WORD

Terry Freedman returns with a new series presenting five handy tips for using your favourite application, starting this week with Microsoft Word.

Rapid Text

There are lots of great features in Word, but one of the best isn't even documented, as far as we can tell. Sometimes, you need to generate text in a hurry to try out a new macro, or to see what a particular formatting style looks like. That usually means bashing out meaningless text as fast as you can - but not any more. If you type =rand() and then press the Enter key, you'll get three paragraphs containing the sentence "The quick brown fox jumps over the lazy dog" five times. In fact, you can exercise some control over this: if you type, say, =rand(4,7) you will get 4 paragraphs with 7 sentences in each.

You're not restricted to low numbers either. Try typing in =rand(100,100) and you'll find yourself with a document over 90 pages long! So the next time your boss asks you to write a full report...

There is a serious side to all this though. Supposing you wanted to test the capabilities of a new printer, or to try out different ways of printing a document (for example, double-sided or booklet), using the rand command will enable you to do so without having to wait until the last minute on the "real" document.

Making Comparisons

Have you ever been in the situation where someone has made a few changes to a document you've sent them, but for the life of you, you cannot see what those changes are? Or, worse still in a way, have you ever discovered that you have two versions of a document but can't see what differences there are - if any - between them?

An incredibly useful feature of Word is the Compare Docs facility. Here's what you do: open one of the two documents. Then, select Tools-Compare and select documents (this command may be found under the Tools-Track changes menu in some versions of Word), and then open the other document for comparison.

The second document will indicate all the changes, showing what text has been added, and what text deleted, from the first document, each in its own colour. That should then give you a better idea of which version is the one you need to regard as the correct one.

In fact, this feature uses the same approach as the Track Changes feature just mentioned. If you are not sure whether you want to make certain changes - in other words, if you want to do the equivalent of pencil things in and cross things out - use the Track Changes feature in the Tools menu. This will show your changes in different colours, depending on whether text has been added, deleted or reformatted, but those changes will not be permanent until you accept them.

You do that by clicking on Tools-Track Changes-Review Changes or by selecting the appropriate toolbar option (if you are using Word XP). You can then decide whether to accept or reject all changes in one go, or whether to decide on each one in turn.

This feature is also indispensable when you want people to suggest changes to the text. Instead of asking 10 people to make changes and then send you 10 versions of the document, ask them all to make their changes on just the one document (either by sending it on to each person in turn or, if at work, putting it on the network where everyone can gain access to it). The beauty of this approach is that if you let the mouse pointer rest on a particular alteration, you'll get a notice telling you who made the change and even the date and time they did so.

Putting On The Style

Most people tend to create headings simply by selecting certain text and then making it bold and bigger. Well yes, that works, but it's not the best approach because it's pretty limiting. How? In the first place, if you belatedly decide that you would like all your headings to be centred, underlined and in red, instead of just bold, you will have to reformat each one individually. If your document is more than a few pages long, that will be a real pain. It would be much better, of course, to be able to change all the headings in one fell swoop.

Secondly, if you would like to create a table of contents for your document, the only sensible way of doing so, even for a very short document, is to automate the process. The reason is that if you insert or delete text,

5 HANDY TIPS FOR MS WORD - CONT

the page numbering may change: unless you use the facilities that Word offers, you could miss that and thereby end up with a table of contents which isn't accurate - and which is therefore not very useful.

So what can be done? Enter paragraph styles. If you look at the top of the screen you'll see a box with the word "Normal" inside it. That is telling you that the paragraph style you are currently using is called Normal. Click on the drop-down arrow and you'll see several more paragraph styles.

A quick way of creating a heading is to click somewhere inside the text and then press Ctrl-Alt-1 for the main heading (Heading 1), Ctrl-Alt-2 for the sub-heading (Heading 2) or Ctrl-Alt-3 for a sub-sub heading (Heading 3).

To change the appearance of a paragraph style, select Format-Styles and Formatting, select the style you wish to change, and then click on Modify. You'll be able to change things like the default font, the spacing between paragraphs, and even whether or not a subheading can exist on its own at the bottom of a page. And any changes you make will be seen immediately in every paragraph in that style.

And tables of contents? To generate one, click on Insert-Reference-Index and Tables and then the Table of Contents tab. The ToC will be created from the Headings and subheadings formatted as paragraph styles.

Headers and Footers

If you'd like the page number and other information, such as the name of the author and the name of the document, to appear on every page, then you need to use a header or footer. The header is the text that appears at the top of each page, and the footer - well, I'm sure you can work that out for yourself!

Go to View-Header and Footer, and a toolbar will appear in the foreground whilst the rest of the page appears greyed out. If you click on the Autotext option, you'll get a number of choices of text you can insert. The great thing is that the text inserted in this way will be updated automatically as the need arises.

Suppose, for example, that you decide to insert the text Page x of y. Each time the number of pages in the document changes, y will change, and each page will automatically have the correct page number.

One of the icons in the toolbar is for switching from the header to the footer part of the page. It's worth exploring the other icons though because some quite complicated arrangements are possible. For example, you can have different headers and footers depending on whether the page number is even or odd (take a look at the average non-fiction book and even some magazines, and you'll see exactly what we mean. You can also choose to have no header or footer on the very first page.

Work

If you are working on a document over a period of time, like days or weeks, or if you need to refer to it quite often, it can get frustrating if, like me, you can never remember where you've saved it on your hard disk. The number of documents that can be referenced in the File menu is limited to 9, and even the Recent Documents option in Windows does not have infinite capacity. Word has the answer, in the form of the Work menu.

You may not have heard of this, because it doesn't appear with the rest of the menus as a matter of course. In order to materialise it, you have to customise the appearance of Word. Fortunately, it's ridiculously easy to do.

Put the mouse point over any of the toolbars, and press the right mouse button. A menu of toolbars will appear, and at the bottom of the list you'll see the word "Customize". Click on that, and then, in the Commands tab, scroll down the list on the left hand side until you see the entry "Built-in menus". Click on that, and on the right hand side you'll notice that one of the entries is Work. Click on that, and then drag it up to the list of menus at the top of the screen, and let go. Then close the Customize box.

Next, open the document you need to work on or refer to, and then click on Work-Add to Work menu. The document will then be accessible at the click of the left mouse button - as long as you don't move it to a different location!

THE STORY OF FISKVILLE - CONT

Ian McLean VK3JQ   First part in Dec 2003 issue

The Beam Wireless Service

The establishment of Australia's first coastal radio station in Sydney, by the fledgling Australasian Wireless Company in 1910, signalled a new era of communication. Further developments followed when the company built two high-powered stations at Pennant Hills, Sydney, and Applecross, near Perth.

In 1913, Amalgamated Wireless Australasia Ltd (AWA) was formed, assuming the responsibilities of the Australasian Wireless Company. AWA's Managing Director, Ernest Fisk, outstanding figure in radio development in Australia, believed in the new science of radio and was convinced that one day, direct wireless communication would be possible between Australia and Great Britain.

In 1916, Fisk went to England for discussions with the Marconi Company. From these talks it was agreed that radio trials between England and Australia would proceed.

The First World War of 1914-18 showed the Vulnerability of the existing system of submarine cables for Australia's communications needs. It was feared contact between the UK and Australia could be lost. The first important step towards direct communication was taken in 1918 when Sir Ernest Fisk received the first long-wave signals and succeeded in receiving messages direct from England at his home in Wahroonga, Sydney. This was the culmination of many experiments carried out in co-operation with Guglielmo Marconi, and with the approval of the Admiralty, which gave permission for the Marconi station at Carnarvon to be released from its special war transmissions for the purpose.

Although certain European stations had been occasionally intercepted in Australia, it was not until 22nd September, 1918, that wireless messages transmitted from England were addressed to, and correctly received without relay in Australia.

These messages were from the Rt. Hon. W. M. Hughes, then Prime Minister of Australia, and the Rt. Hon. Sir Joseph Cook, then Minister for the Navy, and were sent by the Marconi Station at Carnarvon and transcribed by Sir Ernest Fisk at his experimental station at his home, at the corner of Cleveland and Stuart streets, Wahroonga in New South Wales.

In honour of the historic event, Ku-ring-gai Council, the historical society of NSW and the Amalgamated Wireless Australasia, in 1935, jointly funded the building of a monument which now stands on the corner of Stuart and Cleveland streets. Although the greatest interest was in the technical achievement, the texts of the messages have historic value to Australians, and are quoted:

From the Rt. Hon. W. M. Hughes, " I have just returned from a visit to the battlefields where the glorious valour and dash of the Australian troops saved Amiens and forced back the legions of the enemy, filled with greater admiration than ever for these glorious men and more convinced than ever that it is the duty of their fellow citizens to keep these magnificent battalions up to their full strength."

From the Rt. Hon. Sir Joseph Cook, " Royal Australian Navy is magnificently bearing its part in the great struggle. Spirit of sailors alike is beyond praise. Recent hard fighting brilliantly successful, but makes reinforcements imperative. Australia hardly realises the wonderful reputation which our men have won. Every effort being constantly made here to dispose of Australia's surplus products."

The signals were radiated on a wavelength of 14,300 metres, and traversed approximately 9,300 miles to the receiver. This comprised one stage of radio frequency amplification, a detector and five audio stages. The Marconi Company conducted experiments in 1920 and 1921 into the strength of longwave radio signals received at distant places; included was Koo-Wee-Rup. (See "Radio Waves", April 2001, Experiment at Koo-Wee-Rup)

Experiments were continued and eventually an experimental station was established at Koo-wee-rup near Melbourne. A directional aerial having a heart-shaped polar diagram was employed, and the old receiver was replaced by a new one of the heterodyne type, comprising six stages of radio frequency amplification and two stages of audio frequency amplification.

For over a year, the signal strengths of many stations were carefully measured and the results showed that wireless signals could be received over long periods each day from New York, Rome, England, Paris and Germany, and were sufficiently consistent to assure

7

regular wireless communication between England and Australia.

Tests between Koo-Wee-Rup and England proved that direct radio links were possible across the globe.

Immediately after these trials, in 1920, AWA and the Marconi Company submitted a proposal to the Australian Government to establish a direct long-wave radio service between Australia and Britain. This proposal was held in abeyance when the British Government established a committee to investigate the feasibility of establishing an Imperial wireless chain. The recommendations from this Committee displeased the Australian Government, which feared being left isolated and vulnerable at the end of the chain.

The preliminary technical problems having been solved, it was now possible to apply the experience gained to the establishment for a commercial service. Long delays, however, resulted from the hesitancy of the British Government to co-operate in any scheme of direct communication. The British attitude had been formulated on the report of an expert committee, which had recommended a system of relay stations at intervals of 2000 miles, with a station at Darwin as the extreme terminal.

Such an arrangement that Australia suffered all the disadvantages of cumulative delay, and it is highly doubtful if such a service could have been commercially successful, and, indeed, a considerable deficit was predicted by the expert committee.

On the advocacy of the Rt. Hon. W. M. Hughes, advised by Sir Ernest Fisk, Empire communications were again reviewed, and at the Imperial Conference in 1921, Britain agreed to co-operate in Australia's proposals for direct services. South Africa and the other Dominions followed Australia's lead, and supported its proposals. Delegates to the 1921 Imperial Wireless Conference of the wireless chain proposal accepted this proposal in 1922, following the rejection.

Following the abandonment by the Empire of the relay scheme, the Federal Government appointed a representative Select Committee, comprising members of both sides of the House, to study the best means of implementing the communication decisions reached in the Imperial discussions.

After a complete investigation of the available systems and proposals, the Committee recommended that the Government enter into an agreement with Amalgamated Wireless. In accepting the AWA proposal, the Government acquired 50 per cent of the company's shareholding, plus one share. The agreement provided that the Commonwealth Government was to hold 500,001 £1 shares out of a capital of £1,000,000. The Government was to appoint three directors to a board of seven, the private shareholders three directors, and that the seventh director be selected by a majority vote of the other six.

The Company was to construct and maintain in Australia, stations capable of direct commercial services to Canada and to the United Kingdom, to provide for a suitable corresponding station in the United Kingdom and to take over the coastal radio stations, which were operated at a considerable loss.

Certain guarantees regarding communication were also required, and the company was also to proceed with the development, manufacture, sale and use of radio apparatus.

This agreement gave AWA the sole right to construct wireless stations in Australia.

However, a previous agreement struck between AWA and the Marconi Company in 1913 meant that the Marconi Company would be the sole contractor to the necessary radio stations in Australia; AWA would act as the operating company.

During World War I, radio pioneer Guglielmo Marconi had begun experiments into shortwave radio. Later, whilst negotiations and testing proceeded for building a high powered long wave wireless station in Australia, Marconi continued his research into shortwave transmissions.

Marconis' experiments between his station at Poldhu in Cornwall, utilising a new Franklin Beam Antenna array, and his yacht Elettra sailing in the Atlantic, showed that "short-waves were less affected by sunlight than long-waves, which travel by the path of maximum darkness, and that the propagation of short waves was unaffected by intervening land masses". The existence of the ionosphere had not yet been realized.

In February 1924, AWA engineers received a cable from

Marconi, asking them to accept signals on the 90 metre wavelength from his Poldhu station in Cornwall. Two test sets were hastily constructed at AWA's Knox Street factory in Sydney, as there was no wireless set in Australia capable of receiving this wavelength.

Just before dawn on 6 March 1924, the Poldhu signals were clearly heard by the monitoring team in the Sydney suburb of Willoughby. A whole series of tests began, with shorter and shorter wavelengths. and it was found that the 25 metre wavelength gave the best results.

So successful were these trials that, by May 1924, Marconi implemented a series of short wave telephony trials to Australia. These also proved to be successful.

In the latter part of 1924, Edward Victor Appleton, began a series of experiments which proved the existence of that layer in the upper atmosphere now called the ionosphere. Further experiments which led to the possibility of round the world broadcasting were carried out and in 1926 he discovered a further atmospheric layer 150 miles above ground, higher than the heaviside layer and electrically stronger. This layer, named the Appleton layer, reflects shortwaves round the earth.

In so far as overseas communications were concerned, the agreement for the direct service was subsequently modified in two main points. Owing to a change in its policy, the British Government decided to erect a suitable station in England, and so the company, AWA Ltd, was freed from its obligation in that respect. The second modification was of considerable technical importance. Immediately prior to the commencement of work on the stations, Marconi announced the development of what was termed the " beam system."
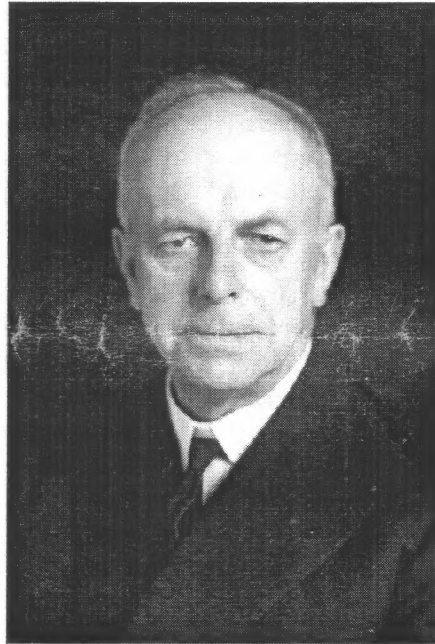
Charles Samuel Franklin

This system, developed by Charles Samuel Franklin. one of Marconi's closest associates, employed the then little used short waves, and incorporated a system of reflectors behind the aerials, giving directive propagation with a resultant gain in signal strength at the receiver. The new system had the important advantages of a much greater freedom from atmospherics and of requiring very much less power. Although much of the preliminary work for the erection of the long wave stations had been done, it was decided, with the approval of the Commonwealth Government, to test the beam system.

The plans were modified accordingly, and this decision more than halved the capital expenditure required for the erection of the Australian stations.

The first Imperial wireless beam service was opened in October, 1926, between Great Britain and Canada. It marked the culminating point of 10 years of HF experimental work and was a turning point in wireless history in that it marked the end of the development of high power LF transmitting stations, of which Rugby may be said to be an example.

To be continued in the next issue

READERS!!

Where are your contributions?

Surely there is a member who could fill this small space!

BLACKOUT 14 AUG 2003 IN USA

Did Blaster cause the August 14th blackout? The official analysis says "no," but I'm not so sure.

According to the "Interim Report: Causes of the August 14th Blackout in the United States and Canada," published in November and based on detailed research by a panel of government and industry officials, the blackout was caused by a series of failures.

The chain of events began at FirstEnergy, a power company in Ohio. There, a series of human and computer failures turned a small problem into a major one. And because critical alarm systems failed, workers at FirstEnergy did not stop the cascade because they did not know what was happening.

This is where I think Blaster may have been involved. The report gives a specific timeline for the failures. At 14:14 EDT, the "alarm and logging software" at FirstEnergy's control room failed. This alarm software "provided audible and visual indications when a significant piece of equipment changed from an acceptable to problematic condition." Of course, no one knew that it failed.

Six minutes later, "several" remote control consoles failed. At 14:41, the primary server computer that hosted the alarm function failed. Its functions were passed to a backup computer, which failed at 14:54.

Doesn't this sound like a computer worm wending its way through FirstEnergy's operational computers?

According to the report, "...for over an hour no one in FE's control room grasped that their computer systems were not operating properly, even though FE's Information Technology support staff knew of the problems and were working to solve them..."

Doesn't this sound like IT working to clean a worm out of its network?

This massive computer failure was critical to the cascading power failure. The report continues: "Power system operators rely heavily on audible and on-screen alarms, plus alarm logs, to reveal any significant changes in their system's conditions. After 14:14 EDT on August 14, FE's operators were working under a significant handicap without these tools. However, they were in further jeopardy because they did not know that they were operating without alarms, so that they did not realize that system conditions were changing."

Other computer glitches are mentioned in the report. At the Midwest Independent Transmission System Operator, a regional agency that oversees power distribution, there's something called a "state estimator." It's a computer used to determine whether the power grid is in trouble. This computer also failed, at 12:15. According to the report, a technician tried to repair it and forgot to turn it back on when he went to lunch.

The Blaster worm first appeared on August 11, and infected more than a million computers in the days following. It targeted a vulnerability in the Microsoft operating system. Infected computers, in turn, tried to infect other computers, and in this way the worm automatically spread from computer to computer and network to network. Although the worm didn't perform any malicious actions on the computers it infected, its mere existence drained resources and often caused the host computer to crash. To remove the worm a system administrator had to run a program that erased the malicious code; then the administrator had to patch the vulnerability so that the computer would not get re-infected.

According to research by Stuart Staniford, Blaster was a random-start sequential-scanner, and scanned at about 11 IPs/second. A given scanner would cover a Class B network in about 1 hour and 40 minutes. The FirstEnergy computer-failure times are fairly consistent with a series of computers with addresses dotted around a class B being compromised by a scan of the class B, probably by an infected instance on the same network. (Note that it was not necessary for the FirstEnergy network to be on the Internet; Blaster infected many internal networks.)

The coincidence of the timing is too obvious to ignore. At 14:14 EDT, the Blaster Worm was dropping systems all across North America. The report doesn't explain why so many computers--both primary and backup systems--at FirstEnergy were failing at around the same time, but Blaster is certainly a reasonable suspect.

Unfortunately, the report doesn't directly address the Blaster worm and its effects on FirstEnergy's computers.

BLACKOUT 14 AUG 2003 - CONT

The closest I could find was this paragraph, on page 99: "Although there were a number of worms and viruses impacting the Internet and Internet connected systems and networks in North America before and during the outage, the SWG's preliminary analysis provides no indication that worm/virus activity had a significant effect on the power generation and delivery systems. Further SWG analysis will test this finding."

Why the tortured prose? The writers take pains to assure us that "the power generation and delivery systems" were not affected by Blaster. But what about the alarm systems? Clearly they were all affected by something, and all at the same time.

This wouldn't be the first time a Windows epidemic swept through FirstEnergy. The company has admitted that they were hit by Slammer in January.

Let's be fair. I don't know that Blaster caused the blackout. The report doesn't say that Blaster caused the blackout. Conventional wisdom is that Blaster did not cause the blackout. But it seems more and more likely that Blaster was one of the many causes of the blackout.

Regardless of the answer, there's a very important moral here. As networked computers infiltrate more and more of our critical infrastructure, that infrastructure is vulnerable not only to attacks but also to sloppy software and sloppy operations. And these vulnerabilities are invariably not the obvious ones. The computers that directly control the power grid are well-protected. It's the peripheral systems that are less protected and more likely to be vulnerable. And a direct attack is unlikely to cause our infrastructure to fail, because the connections are too complex and too obscure. It's only by accident--Blaster affecting systems at just the wrong time, allowing a minor failure to become a major one--that these massive failures occur.

We've seen worms knock out 911 telephone service. We've seen worms disable ATMs. None of this was predictable beforehand, but all of it is preventable. I believe that this sort of thing will become even more common in the future.

TELEPHONE SECURITY

(I was sent this information from a UK friend. It may relevant in Australia too - MMH Ed)

A new telephone scam has recently come to light and relates to home and work phones, including mobiles. Telephone users are informed via a recorded message they have won an all expenses paid exotic trip, then requested to press 9 for further details. You are then connected to a premium rate line costing £20 per minute. Even if you disconnect immediately, the other end will stay connected for 5 minutes at a cost to you of £100. The total length of the message is 11 minutes.

Callers are also asked for their postcode and house number, (which has other obvious security risks) and after a wait of two minutes responds, stating rather unsurprisingly, that you have not won anything but adds a further £260 to your bill. Needless to say the only exotic trip you can expect, will be to the bank!

Unfortunately, as this scam is perpetrated outside the UK, BT and other providers are relatively powerless to act. Consequently, all staff are reminded to ignore any such calls and disconnect the line immediately before the message prompts you to press 9.

11

E-MAIL AND PACKET ADDRESSES AND CALL SIGNS:

Brian Anderson: , bandrson@island.com.au, VK2AND
Robert Blake: robel@one.net.au, VK2BRN
Trevor Bird: Trevor_R_Bird@bigfoot.com
Sam Burgess: harburg@compuserve.com, VK2TTD, M1EWQ
Phil Crocker: philcro@tpg.com.au, VK2PR
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MEETING SCHEDULE FOR ACCA

VENUE FOR MEETINGS.

Kirribilli Club, Cliff Street, Milsons Point, 7.30pm

Monday, 19 April

Monday, 17 May

Monday, 21 June

Members can meet before the main discussion for a meal 6.30pm. The meeting will start at 7.30pm.

What are your suggestions for meeting places?

What are your suggestion for interesting speakers?

Contact via email or ring Peter on 02 9960 1486 or Warren on 02 4362 2316

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